8. MENSURATION (2D)

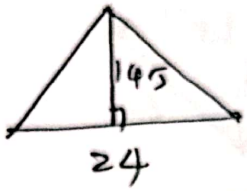
Class: VI FOUNDATION

Mathematics: SOLUTIONS

TEACHING TASK

01. $b = 24$

$h = 14.5$



$\Delta = \frac{1}{2} bh$

$= \frac{1}{2} \times 24 \times 14.5$

$= 174 \text{ cm}^2$

Ans B

02 $l = 10m$, $b = 5m$

$P = 2(l+b)$

$= 2(10+5)$

$= 30 mt$

Cost $= 30 \times 10 = Rs\ 300.$

Ans: A

03 $\Delta = \frac{1}{2} \times 6 \times 9 = 27 cm^2$

Ans: A

04 $C = 2\pi r$

$= 2 \times \frac{22}{7} \times 10.5$

$= 66 cm$

Ans: A

05 $2\pi r - r = 37$

$2 \times \frac{22}{7} \times r - r = 37$

$\Rightarrow r\left(2 \times \frac{22}{7} - 1\right) = 37$

$\Rightarrow r\left(\frac{44-7}{7}\right) = 37$

$\Rightarrow r = \frac{37 \times 7}{37}$

$r = 7 cm$

Area $= \pi(7)^2 = \frac{22}{7} \times 7^2$

$= 154$

Ans: C

06 Area of square $= a^2 = (20)^2 = 400$ (2)

$\therefore 400 = l \times b$

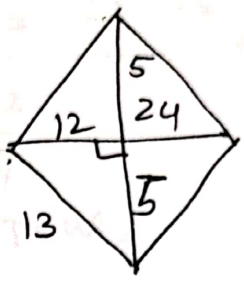
$400 = 40 \times b$

$\Rightarrow b = 10$

Ans: B

07 Area $= \frac{1}{2} \times 24 \times 10$

$= 120$



Ans: D

08 $P = 2(20+10)$

$= 60$ mt

Ans: B

09 $A = 560 \times 350$

Area of square $= a^2 = 560 \times 350$

$\Rightarrow a = \sqrt{560 \times 350}$

$= 140$

perimeter $= 4 \times 140$

$= 560$ mt

Ans: D

10 $l = 2m, \quad b = 1m$

$P = 2(l+b)$

$= 2(2+1)$

$= 6$ mt

Ans: D

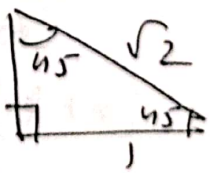
11. $a : b : c = 1 : 1 : \sqrt{2}$

$A : B : C = 45^\circ : 45^\circ : 90^\circ$

$= 1 : 1 : 2$ (or)

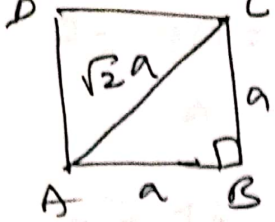
$= 2 : 2 : 4$ (or)

$= 8 : 8 : 16$



Ans: A, C, D

12



Ratio of side : diagonal = $a : \sqrt{2}a$

$= 1 : \sqrt{2}$ (or)

$= \sqrt{3} : \sqrt{6}$

Ans. B, D

13 Statement I: $\frac{2\pi r}{2r} = \frac{22}{7}$

$\Rightarrow \pi = \frac{22}{7}$ (True)

Statement II: True (Conceptual) Ans. A

17 $4a = 100$

$\Rightarrow a = 25$

Area $= (25)^2 = 625$

Ans. A

18 No. of tiles $= \frac{144 \times 100}{12 \times 5}$

$= 240$

Ans. B

21 $A = \frac{1}{2} \times 15 \times 12 = 90$

New Area $= 180 = \frac{1}{2} \times 20 \times h$

$\Rightarrow h = 18$

Ans. 18

23 a) perimeter of square = 4 × side

b) perimeter of a rectangle = $2(l + b)$

c) Area of square = side × side

d) Area of rectangle = $l \times b$

Ans: S, R, P, Q

a) $p = 4a = 36$ (4)

$a = 9$

b) $a^2 = 72$

$\Rightarrow a = \sqrt{72}$

diagonal $= \sqrt{2}\, a$

$= \sqrt{2} \times \sqrt{72} = \sqrt{2} \times 6\sqrt{2}$

$= 12$

c) perimeter $2(l+b) = 32$

$\Rightarrow l + b = 16$

(1, 15), (2, 14), (3, 13), (4, 12), (5, 11),
(6, 10), (7, 9), (8, 8)

No. of rectangles = 8

d)

LEARNERS TASK

CUQ's

01. perimeter = no. of sides x length of one side — Ans: A

02. Conceptual — Ans: B

03. Conceptual — Ans: A

04 Conceptual — Ans: B

05. Sides ratio = 1 : 1 : $\sqrt{2}$

Ans: C

06 Conceptual — Ans: B

07 Conceptual — Ans: D

08 Conceptual

Ans: D

09 Conceptual

Ans: B

10. Conceptual

Ans: C

JEE MAINS LEVEL

01. Pentagon → $n=5$

perimeter $= 5a$

$= 5 \times 5$

$= 25$ cm

Ans: B

02 $\Delta = \frac{1}{2} \times 25 \times 10.8$

$= 135$

Ans: A

03 $p = 52 + 56 + 60$

$= 168$ cm

Ans: C

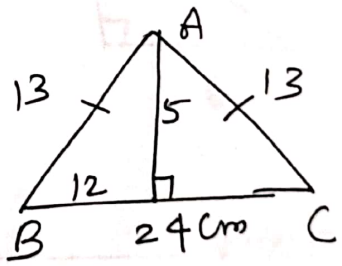
04 $A = 15 \times 6$

$= 90$

Ans: B

05 Area $= \frac{1}{2} \times 24 \times 5$

$= 60$



Ans: C

06 $b \times h = 50$

$\Rightarrow 10 \times h = 50$

$\Rightarrow h = 5$ cm

Ans: C

07 $A = b \times h$

$144 = b \times 18$

$\Rightarrow b = 8$

Ans: C

08 perimeter $= 1 + 2 + 2 + 1 + 2 + 1 + 2 + 2 + 1 + 2 + 2 + 2$

$= 20\,cm$

Ans: D

09. $A = \frac{1}{2} d_1 d_2$

$= \frac{1}{2} \times 25 \times 16.8$

$= 210\,cm$

Ans: D

10 $P = 2(l + b)$

$= 2(0.5 + 0.25)$

$= 2(0.75)$

$= 1.5$

$\therefore$

fencing needed $= 4 \times 1.5$

$= 6\,km$

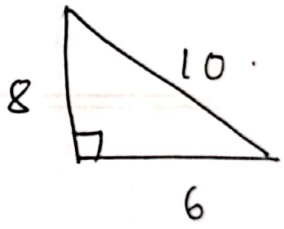
Ans: D

11. Area $= \frac{1}{2} \times b \times 8$

$= 24$ (or)

$= 2 \times \sqrt{144}$ (or)

$= \sqrt{576}$



Ans: A, B, C

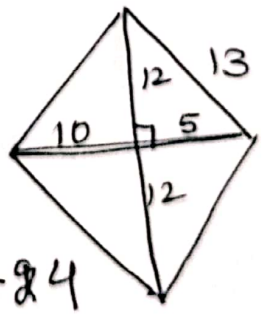
12 $4a = 52$

$\Rightarrow a = 13, 0$

Area $= \frac{1}{2} \times 12 \times 10$

$=$ other diagonal $= 24$

(or) $2 \times 12\,cm$



Ans: B, D

13. Statement I: $\triangle = \frac{\sqrt{3}}{4} \times (4)^2 = 4\sqrt{3}$ (True)

Statement II: Conceptual (True)

Ans: D

17 $a = 4$

$d = \sqrt{2}\, a$

$= \sqrt{2} \times 4$

$= 4\sqrt{2}$ cm

Ans: A

21 $\sqrt{2}\, a = 10$

$\Rightarrow a = \frac{10}{\sqrt{2}} = 5\sqrt{2}$

Area $= a^2 = (5\sqrt{2})^2$

$= 50$

Ans: 50

23 a) Area of square $= a^2$

b) Area of quadrilateral $= \frac{1}{2} \times d(h_1 + h_2)$

c) Area of rhombus $= \frac{1}{2} \times d_1 \times d_2$

d) Area of parallelogram $= b \times h$

Ans: t, r, s, p

Teaching Task (Jee mains)

14. **Statement I:**

Area of rectangle = $l \times b = 50 \times 30 = 1500\ mt^2$

Area of parallelogram = $b \times h = 50 \times 30 = 1500\ mt^2$ (True)

Statement II: Conceptual (True) Ans: A

15 **Assertion:**

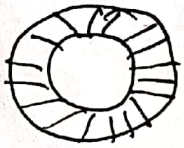
Perimeter of square = $4a = 4 \times 40 = 160\ mt^2$

Perimeter of rectangle = $2(l+b)$

$= 2(50+30) = 160\ mt^2$ (False)

Reason: Conceptual (True) Ans. C

16 **Assertion:**



Area of ring = $\pi(R^2 - r^2)$

$\Rightarrow \pi(14^2 - 7^2)$

$= \pi \times 21 \times 7$

$= 147\pi\ cm^2$ (True)

Reason: Conceptual (True) Ans.. A

19. $l = 50\ mt$, $b = 40\ mt$

Area = $l \times b = 50 \times 40 = 2000\ mt^2$ Ans: A

20 Area of parallelogram = $\frac{1}{2} \times 2000 = 1000\ mt^2$ Ans: B

22 Area of the Lawn (not covered) =

Area of rectangle − Area of square

$= 80 \times 60 - (40)^2$

$= 4800 - 1600$

$= 3200\ cm^2$ Ans: 3200

Learners Task (C.00)

14 **Statement I:**

Area of ring $= \pi(R^2 - r^2)$

$= \pi(10^2 - 6^2)$

$= \pi \times 16 \times 4 = 64\pi \text{ cm}^2$ (True)

Statement II: Conceptual (True) Ans. A

15 **Assertion:** Area of rectangle $= \frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 10 \times 6 = 30 \text{ cm}^2$

(False)

Reason: Conceptual (True) Ans: B

16 **Assertion:** Area of Circle $= \pi r^2$

$= \frac{22}{7} \times 7 \times 7 = 154 \text{ cm}^2$

(True)

Reason: Conceptual (True) Ans. A

18 Perimeter < Area Ans. B

19 Area of trapezium $= \frac{1}{2} \times h \times (a+b)$

$= \frac{1}{2} \times 5 \times (12+8)$

$= 50 \text{ cm}^2$ Ans. B

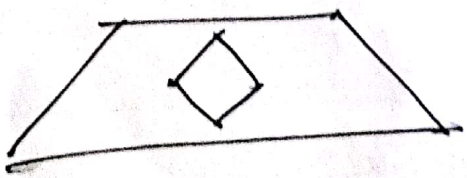
20 Area of remaing part = Area of trapezium −

Area of Rhombus

$= 50 - \frac{1}{2} \times 10 \times 8$

$= 50 - 40$

$= 10 \text{ cm}^2$



Ans: —

22 Area of trapezium $= \frac{1}{2} \times h \times (a+b)$

$= \frac{1}{2} \times 8 \times (20+12)$

$= 128 \text{ cm}^2$ Ans: 128

24 a) 36 inches (9)

b) 12 inches (P)

c) 5280 feet (r)

d) 0.54 cm (S) Ans: 9, P, r, S

THE END